In the Claims:

Please cancel claims 1-21.

Please add claims 22-42 as follows:

--22. A method for implementing a class of N×N compressors each serving a connection request to route m incoming signals, m≤N, and for enabling the service of any connection request in a nonblocking way on the condition that the connection request is compliant to certain constraints, the method for each of the compressors comprising

configuring a switch defined by a set of connection states and having an array of N input ports with N distinct input addresses and an array of N output ports with N distinct output addresses wherein the m incoming signals arrive at m distinct input ports determining m active input addresses and are destined for corresponding m distinct output ports determining m active output addresses, and wherein said constraints on the connection request are that: (1) the m active output addresses are consecutive upon a rotation of the ordering of the N output addresses, and (2) the correspondence between the m active input addresses and the m active output addresses is order preserving after the rotation, and

routing the incoming signals from the m distinct input ports to the corresponding m distinct output ports by activating one of the connection states such that the activated one of the connection states accommodates the connection request subject to said constraints on the connection request,

said class excluding (i) those having a switch constructed from the reverse banyan network of switching cells appended with the inverse shuffle exchange and (ii) those having a switch constructed from the reverse shuffle-exchange network of

switching cells appended with the inverse shuffle exchange.

23. The method as recited in claim 22 wherein the configuring includes constructing the switch as an N×N k-stage switching network composed of k stages of nodes, an interstage exchange between any succeeding two of the k stages, an input exchange and an output exchange, and wherein each node is filled with another switch.

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24. The method as recited in claim 22 wherein the configuring includes constructing the switch as an N×N k-stage switching network composed of k stages of nodes, an interstage exchange between any succeeding two of the k stages, an input exchange and an output exchange, and wherein each node is filled with a compressor.

25. The method as recited in claim 22 wherein the configuring includes constructing the switch as a two-stage interconnection network composed of a first stage of nodes being the input nodes and a second stage of nodes being the output nodes, an interstage exchange, and an output exchange corresponding to the interstage exchange appended to the network, and wherein each node is filled with a compressor.

26. The method as recited in claim 22 wherein the configuring includes constructing the switch as a 2X interconnection network having nodes and wherein each node is filled with a compressor.

27. The method as recited in claim 22 wherein the configuring includes constructing

the switch as a 2X interconnection network having nodes and wherein the nodes are filled with a plurality of compressors.

28. The method as recited in claim 22 wherein the configuring includes constructing the switch as a recursive 2X interconnection network having nodes and wherein each node is filled with a compressor.

29. The method as recited in claim 22 wherein the configuring includes constructing the switch as a recursive 2X interconnection network having nodes and wherein the nodes are filled with a plurality of compressors.

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30. The method as recited in claim 22 wherein the configuring includes constructing the switch as a recursive 2X interconnection network having nodes and wherein each of the nodes is a cell and each cell is filled with a 2×2 compressor.

31. The method as recited in claim 30 wherein the 2×2 compressor is a switching cell.

32. The method as recited in claim 22 wherein the configuring includes constructing the switch as a recursive 2X interconnection network of cells with each cell filled with a 2×2 compressor.

33. The method as recited in claim 32 wherein the 2×2 compressor is a switching cell.

34. The method as recited in claim 22 wherein the configuring includes constructing the switch as a banyan-type network whose trace and guide are both monotonically decreasing and wherein each of the 2×2 nodes of the banyan-type network is filled with a 2×2 compressor.

35. The method as recited in claims from 34 wherein the 2×2 compressor is a switching cell.

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36. The method as recited in claim 22 wherein the configuring includes constructing the switch as a recursive plain 2-stage interconnection network of cells appended with a swap exchange and wherein each cell of the network is filled with a 2×2 compressor.

37. The method as recited in claim 36 wherein the 2×2 compressor is a switching cell.

38. The method as recited in claim 22 wherein the configuring includes constructing the switch as a divide-and-conquer network of cells appended with a swap exchange and wherein each cell of the network is filled with a 2×2 compressor

39. A class of N×N compressors each serving a connection request to route m incoming signals, m≤N, and for enabling the service of any connection request in a

nonblocking way on the condition that the connection request is compliant to certain constraints, each of the compressors comprising

a switch defined by a set of connection states and having an array of N input ports with N distinct input addresses and an array of N output ports with N distinct output addresses wherein the m incoming signals arrive at m distinct input ports determining m active input addresses and are destined for corresponding m distinct output ports determining m active output addresses, and wherein said constraints on the connection request are that: (1) the m active output addresses are consecutive upon a rotation of the ordering of the N output addresses, and (2) the correspondence between the m active input addresses and the m active output addresses is order preserving after the rotation, and

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control circuitry, coupled to the switch, for routing the incoming signals from the m distinct input ports to the corresponding m distinct output ports by activating one of the connection states such that the activated one of the connection states accommodates the connection request subject to said constraints on the connection request,

said class excluding (i) those having a switch constructed from the reverse banyan network of switching cells appended with the inverse shuffle exchange and (ii) those having a switch constructed from the reverse shuffle-exchange network of switching cells appended with the inverse shuffle exchange.

40. The compressor as recited in claim 39 wherein the switch is constructed by an N×N k-stage switching network composed of k stages of nodes, an interstage exchange

between any succeeding two of the k stages, an input exchange and an output exchange, and wherein each node is filled with another switch.

41. The compressor as recited in claim 39 wherein the switch is constructed by an $N \times N$ k-stage switching network composed of k stages of nodes, an interstage exchange between any succeeding two of the k stages, an input exchange and an output exchange, and wherein each node is filled with another compressor.

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42. The compressor as recited in claim 39 wherein the switch is constructed from a two-stage interconnection network composed of a first stage of nodes being the input nodes and a second stage of nodes being the output nodes, an interstage exchange, and an output exchange corresponding to the interstage exchange appended to the network, and wherein each node is filled with another compressor.--.